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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,956	11/13/2003	Boaz Carmeli	GB920020070US1	7288

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IBM Corporation
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EXAMINER	
PHAN, TUANKHANH D	

ART UNIT	PAPER NUMBER
2109	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,956	CARMELI ET AL.	
	Examiner	Art Unit	
	TuanKhanh Phan	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33 and 36-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33 and 36-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- Copending application number is not presented.

- Step 460 of Figure 4 is not described.

Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3, 17-19, 36-37, and 44-45 are provisionally rejected on the ground of nonstatutory double patenting over claims 1-2 of copending Application No. 10/714,049. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: they both have the same functionalities as well as the means for sending and receiving from subscriber(s) and publisher(s) via broker(s) with status indication. A comparison table of claims between two applications is shown below.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Instant application 10/713,956	Copending application 10/714,049
1. A publish/subscribe messaging system, comprising: at least one broker and at least one subscriber, the **broker** having means for sending a status request message to the subscriber, and means for receiving an **indication of liveness of the subscriber**. 2. The system of claim 1 wherein the subscriber has means for sending a status response message to the broker to **indicate liveness**. 3. The system of claim 1 wherein the means for receiving comprises means for listening on a multicast channel and for determining an indication of non-liveness from failure to receive a response from the subscriber. 17-19; 36-37, and 44-45 claim similar.	1. A subscriber for indicating liveness to a broker in a multicast publish/subscribe messaging system comprising the **broker** and a plurality of subscribers, the **subscriber** comprising: means, responsive to seeing an **indication of liveness**, for setting a timer; means for cancelling the timer if the subscriber sees an indication of liveness prior to the expiry of the timer; and means for sending, on expiry of the timer, an **indication of liveness** to the broker. 2. The subscriber of claim 1, wherein the means for sending an indication of liveness comprises: means for multicasting a claim that the subscriber proposes to send an indication of its presence to the broker; and means for sending a presence indication to the broker.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-33 and 36-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun ("Reliable Multicast for Publish/Subscribe Systems").

Regarding claims 1, 17, 36, and 44, Sun anticipates a publish/subscribe messaging system/method (abstract) comprising: at least one broker (Figure 3-1) and at least one subscriber (abstract), the broker having means for sending a status request message to the subscriber (pg. 14), and means for receiving an indication of liveness of the subscriber (pp. 30-31).

Regarding claims 2, 18, 37, and 45, Sun anticipates the system of claim 1 wherein the subscriber has means for sending a status response message to the broker to indicate liveness (pp. 30-31, "liveness").

Regarding claims 3 and 19, Sun anticipates the system of claim 1 wherein the means for receiving comprises means for listening on a multicast channel and for determining an indication of non-liveness from failure to receive a response from the subscriber (pp. 30-31).

Regarding claims 4, 20, 38, and 46, Sun anticipates the publish/subscribe messaging system of claims 2, 18, 37, and 45 wherein the means for sending a status response message to the broker comprises means for **suppressing** sending of the status response message if at least another subscriber sends a status response

message (Figure 3-3; p. 29, ¶ 2-3; p. 30). Sun further describes situation where only one sender i and receiver j pair is permitted (pp. 29-30).

Regarding claims 5, 21, 39 and 47, Sun anticipates the publish/subscribe messaging system of claims 4, 20, 38, and 46 wherein the means for suppressing sending (p. 15, lines 1-8; Figure 3-3; p. 29, ¶ 2-3; p. 30) of the status response message comprises: means for setting a timer (p. 40, ¶ 2) upon receipt of a status request message from the broker; and means for sending (p. 43), on expiry of the timer, a multicast message claiming response to the broker; means for canceling the timer (p. 43) and discarding the status request message if the subscriber receives a message claiming response from another subscriber (section 4.3; p. 40; p. 42); means for sending the status response message to the broker following sending a message claiming response (p. 43).

Regarding claims 6 and 22, Sun anticipates the publish/subscribe messaging system of claims 5 and 21 wherein the broker further comprises means for re-sending the status request message if it does not receive a response thereto (p. 42, "gossip recovery").

Regarding claims 7 and 23, Sun anticipates the publish/subscribe messaging system of claims 4 and 20 wherein the means for suppressing sending of the status response message is arranged to suppress sending (pp. 29-30) of the status response message if at least a desired plurality of other subscribers send a status response message (Figure 3-3).

Regarding claims 8 and 24, Sun anticipates the publish/subscribe messaging system of claims 7 and 23 wherein the means for suppressing sending of the status response message (p. 15, lines 108; pp. 29-30) comprises: means for setting a timer (p. 43) upon receipt of a status request message from the broker (Figure 3-1), the status request message containing a parameter representative of the desired plurality of other subscribers (Figure 3-1; Figure 3-3); means for sending, on expiry of the timer, a multicast message claiming response to the broker (Figure 3-1); and means for canceling the timer and discarding (section 4.3) the status request message if the subscriber receives messages claiming response from the desired plurality of other subscribers (p. 43); means for sending the status response message to the broker following sending a message claiming response (pp. 40-41).

Regarding claims 9 and 25, Sun anticipates the publish/subscribe messaging system of claims 5 and 21 wherein the timer has a random duration (p. 15, lines 1-8, "randomizing the delays").

Regarding claims 10 and 26, Sun anticipates the publish/subscribe messaging system of claims 1 and 17 wherein at least one of the subscribers is arranged to maintain an active connection to the broker established during registration(abstract; Figure 3-1; p. 15, last ¶), and to use the active connection to indicate liveness to the broker (abstract; Figure 3-1; p. 15, last ¶).

Regarding claims 11 and 27, Sun anticipates the publish/subscribe messaging system of claims 10 and 26. See discussions of claims 1-3 and 17-19 above.

Regarding claims 12 and 28, Sun anticipates a publish/subscribe messaging system according to claims 1 and 17, wherein the broker is arranged to designate as a primary subscriber (p. 13; Figure 3-1) the first subscriber to register interest in a topic (p. 13), and to maintain an active connection to the primary subscriber for sending directly to the primary subscriber a status request message (p 43), and in the event of failure of the primary subscriber to send (p. 43) a status request message to at least one other subscriber and to designate (p. 43) as a new primary subscriber the at least one of the other subscribers whose indication of liveness is next first received (p. 43).

Regarding claims 13 and 29, Sun anticipates the publish/subscribe messaging system of claims 10 and 26 wherein the active connection is a TCP/IP connection (Figure 3-1).

Regarding claims 14 and 30, Sun anticipates the publish/subscribe messaging system of claims 1 and 17 wherein the status request message is piggybacked onto another multicast publication message (p. 15, ¶ 1).

Regarding claims 15 and 31 Sun anticipates the publish/subscribe messaging system of claims 1 and 17 wherein the indication of liveness is sent over one of: a UDP connection (Figure 3-1); and a TCP connection (Figure 3-1). It is inherent that an Internet connection encompasses UDP and TCP connections.

Regarding claims 16 and 32 Sun anticipates the publish/subscribe messaging system of claims 15 and 31 wherein the connection over which the indication of liveness is sent (Figure 3-1) is arranged to escalate autonomously from a UDP connection to a

TCP connection (Figure 3-1) in the event of no responses being received by the broker within a chosen time period (p. 43).

Regarding claim 33, Sun anticipates a computer program element comprising computer program means for performing substantially the method of claim 17, wherein said program is run on a computer (Figure 3-1).

Regarding claim 40, Sun anticipates the subscriber of claim 38 wherein the means for suppressing sending of the status response message is arranged to suppress sending of the status response message if at least a desired plurality of other subscribers send a status response message (p. 15, "suppressing").

Regarding claim 41, Sun anticipates the subscriber of claim 40 wherein the means for suppressing sending of the status response message comprises: means for setting a timer (p. 40, ¶ 2) upon receipt of a status request message from the broker, the status request message containing a parameter representative of the desired plurality of other subscribers (Figure 3-1); means for sending (p. 43), on expiry of the timer (p. 43), a multicast message claiming response to the broker (p. 43); means for canceling the timer and discarding the status request message (p. 43) if the subscriber receives messages claiming response from the desired plurality of other subscribers (Figure 3-1); and means for sending the status response message to the broker following sending a message claiming response (p. 43).

Regarding claim 42, Sun anticipates the subscriber of claim 36 comprising: means for maintaining an active connection to the broker established during registration

(p. 13, Figure 3-1); and means for using the active connection to indicate liveness to the broker (p. 43).

Regarding claim 43, see discussion of claim 36 in reference with claims 11 and 27.

Regarding claim 48, Sun anticipates the method of claim 46 wherein the step of suppressing sending of the status response message is arranged to suppress sending (p. 15, "suppressing") of the status response message if at least a desired plurality of other subscribers send a status response message (p. 15).

Regarding claim 49. The method of claim 48 wherein the step of suppressing sending (p. 15, "suppressing") of the status response message comprises: setting a timer (p. 43) upon receipt of a status request message from the broker (Figure 3-1), the status request message containing a parameter representative of the desired plurality of other subscribers (Figure 3-1); sending, on expiry of the timer, a multicast message claiming response to the broker (Figure 3-1); canceling (p. 42) the timer and discarding (p. 43) the status request message if the subscriber receives messages claiming response from the desired plurality of other subscribers (Figure 3-1); and sending the status response message to the broker following sending a message claiming response (p. 43).

Regarding claim 50, Sun anticipates the method of claim 44 comprising: maintaining an active connection to the broker established during registration (abstract; Figure 3-1; p. 15, last ¶); and using the active connection to indicate liveness to the broker (Figure 3-1).

Regarding claim 51, Sun anticipates the method of claim 50 comprising: sending a status response message to the broker to indicate liveness (Figure 2-2), wherein the step of sending a status response message to the broker comprises suppressing sending of the status response message if at least another subscriber sends a status response message (p. 15, ¶ 1, last line) and wherein the step of suppressing sending of the status response message comprises: checking, upon receipt of a status request message from the broker (Figure 2-2; p. 43), whether the subscriber has an active connection to the broker and if so performing one of A) and B): A) sending a multicast response claim message (p. 43), and sending a status response message to the broker via the active connection (section 4.1); B) setting a timer and then sending a multicast response claim and a status response message to the broker via the active connection (Figure 4-1); and following sending of a multicast response message, establishing an active connection (p. 33) to the broker if not already established and sending the status response message to the broker via the active connection (p. 34).

Regarding claim 52, Sun anticipates a computer program comprising program code means adapted to perform the method of claim 44 when executed upon a computer (Figure 3-1).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Bhola et al. "Exactly-once Delivery in a Content-based Publish-Subscribe System." Proceedings of the International Conference on Dependable Systems and Networks. 23-26 June, 2002.

Huang et al. "Publish/subscribe in a Mobile Environment." ACM. 2001.

Bracho et al. US Pat. 5,870,605. Middleware for Enterprise Information Distribution. Feb. 9, 1999.

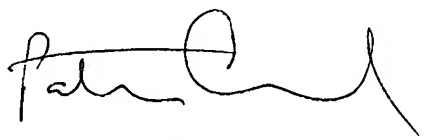
Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TuanKhanh Phan whose telephone number is 571-270-3047. The examiner can normally be reached on Mon to Fri, 9:00am to 5:00pm EST, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tkp



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